

CLAIMS

What is claimed is:

1. An apparatus, comprising:
a carrier substrate having a visible surface; and
a thermochromatic material disposed near the carrier substrate, the thermochromatic material to produce a visual change of the visible surface when an activation temperature of the thermochromatic material is reached.
2. The apparatus of claim 1, wherein the carrier substrate comprises a printed circuit board.
3. The apparatus of claim 2, wherein a solder mask material is part of the visible surface.
4. The apparatus of claim 1, wherein the thermochromatic material comprises a leucodye to change from a first color to a transparent state.
5. The apparatus of claim 1, wherein the thermochromatic material comprises N-isopropylacrylamide to change from a first color to a transparent state.
6. The apparatus of claim 1, wherein the thermochromatic material comprises a liquid crystal to change from a first color to a second color.
7. The apparatus of claim 3, wherein the thermochromatic material comprises a layer above the solder mask.
8. The apparatus of claim 3, wherein solder mask material comprises a first transparent layer, and wherein the thermochromatic material comprises a second layer disposed below the first transparent layer.

9. The apparatus of claim 1, wherein the carrier substrate further comprises component identification markings printed with the thermochromatic material.
10. A printed circuit board, comprising:
 - a signal layer;
 - a solder mask layer disposed above the signal layer; and
 - a thermochromatic layer disposed near the solder mask layer, the thermochromatic layer to change a visible surface of the printed circuit board from a first visible state to a second visible state.
11. The printed circuit board of claim 10, wherein the first visible state comprises a first color and the second visible state comprises a second color.
12. The printed circuit board of claim 11, wherein the thermochromatic layer comprises a liquid crystal material.
13. The printed circuit board of claim 10, wherein the first visible state comprises a first color and the second visible state comprises a transparent state.
14. The printed circuit board of claim 13, wherein the thermochromatic layer comprises a leucodye material.
15. The printed circuit board of claim 13, wherein the thermochromatic layer comprises N-isopropylacrylamide.
16. The printed circuit board of claim 10, wherein the thermochromatic layer is disposed above the solder mask layer.

17. The printed circuit board of claim 10, wherein the solder mask layer is transparent, and wherein the thermochromatic layer is disposed below the solder mask layer.

18. The printed circuit board of claim 10, wherein the thermochromatic layer is integrated with the solder mask layer.

19. A method comprising:

disposing a thermochromatic material near a carrier substrate having a visible surface; and

heating the thermochromatic material to activate a change from a first visible state to a second visible state of the visible surface.

20. The method of claim 19, wherein heating further comprises changing the visible surface from a first color in the first visible state to a transparent state in the second visible state.

21. The method of claim 19, wherein heating further comprises changing the visible surface from a first color in the first visible state to a second color in the second visible state.

22. The method of claim 20, wherein heating further comprises revealing an identification mark disposed on the carrier substrate and near the thermochromatic material.

23. The method of claim 20, wherein disposing further comprises printing the carrier substrate with a leucodye.

24. The method of claim 20, wherein disposing further comprises printing the carrier substrate with N-isopropylacrylamide.

25. The method of claim 21, wherein heating further comprises revealing an identification color for the carrier substrate.
26. The method of claim 21, wherein disposing further comprises printing the carrier substrate with a thermochromatic liquid crystal.
27. The method of claim 19, wherein heating further comprises raising a temperature of the carrier substrate to an activation temperature that is above an operating temperature of the carrier substrate.
28. The method of claim 19, wherein disposing further comprises printing identification markings with the thermochromatic material.
29. The method of claim 19, wherein disposing further comprises printing locator markings with the thermochromatic material.